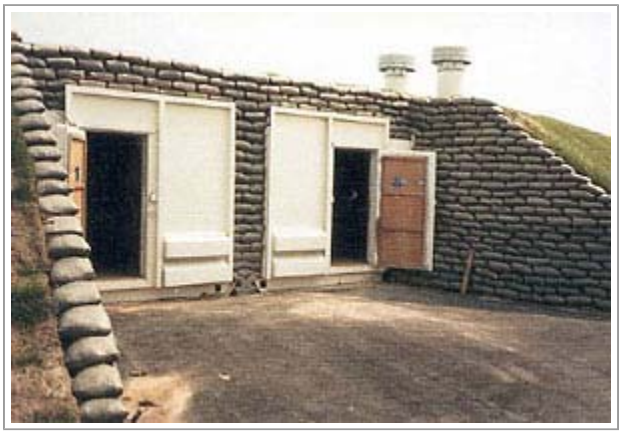
ATF – Bureau of Alcohol, Tobacco, Firearms and Explosives

Explosives Storage Requirements

What's in This Document:



Storage Requirements

The Federal explosives regulations at 27 CFR, Part 555, Subpart K, provide specific construction requirements for explosives magazines. This webpage is intended to provide additional information that may be useful to Federal explosives licensee and permittees. All explosive materials must be kept in locked magazines meeting the standards in Subpart K unless they are:

In the process of manufacture;

Being physically handled in the operating process of a licensee or user;

Being used; or

Being transported to a place of storage or use by a licensee or permittee or by a person who has lawfully acquired explosive materials under Sec. 555.106.

When none of the above conditions apply, explosive materials must be kept in magazines that meet the construction, locking, and table of distance requirements of Subpart K.

Explosive materials must be stored in appropriate magazines.

Magazines must meet all construction and housekeeping requirements of 27 CFR 555, Subpart K.

Magazines must meet Table of Distance requirements.

Magazines must be inspected every 7 days.

Permanent outdoor magazines must have a substantial foundation or be metal skirted to prevent access underneath the magazine.

Explosive materials may not be left unattended in Type-3 magazines, including "day boxes," and must be removed to type 1 or 2 magazines for unattended storage.

Storage regulations **DO NOT** apply to binary explosives until mixed.

Explosive Types and Storage

High Explosives

High explosives, upon initiation, function by detonation, a rapid decomposition (explosion) of the material caused by a shock wave moving through the product at a rate faster than the speed of sound. High explosives, such as blasting caps, detonating cord, dynamite, shaped charges, boosters, etc., must be stored in:

Type-1 permanent magazines;

Type-2 mobile and portable indoor/outdoor magazines; or

Type-3 magazines for attended storage.

Low Explosives

Low explosives deflagrate producing a large volume of heated gas. Low explosives, such as black powder, most display fireworks, safety fuse, igniters, igniter cord, fuse lighters, etc., must be stored in:

Type-1, -2, or -4 permanent, portable or mobile indoor/outdoor magazines.

Blasting Agents

Blasting agents are a material or mixture consisting of fuel and oxidizer that is intended for blasting and that cannot be detonated by a No. 8 test blasting cap when unconfined. Blasting agents may be stored in:

Type-5 permanent, portable, or mobile outdoor/indoor magazines (minimum requirement).

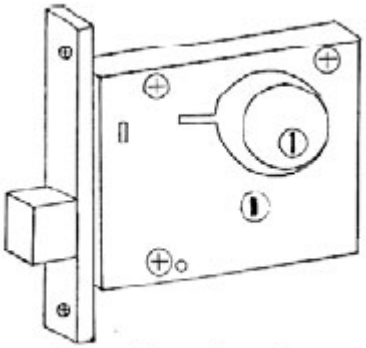
Blasting Agents stored with high explosives must be stored in a Type-1 or -2 magazine.

Storage Security

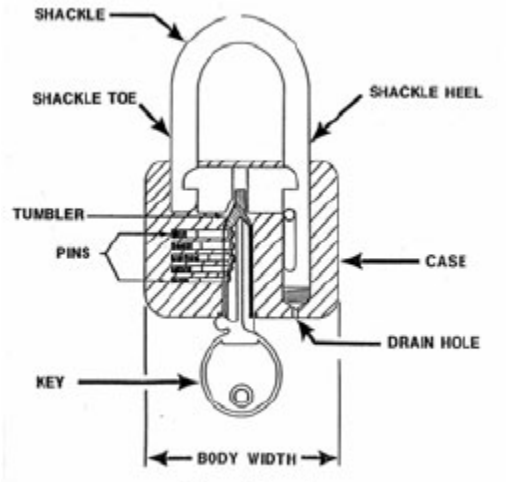
Hinges and hasps

Hinges and hasps must be attached to doors by welding, riveting, or bolting so that the bolts cannot be removed from the outside.

Locks



Mortise Lock



Padlock

ATF suggests that any padlock securing an explosives magazine have an American Society of Testing Materials (ASTM) rating of at least 5 for "forcing" and "surreptitious entry." ASTM's publication, F883-97 "Standard Performance Specifications for Padlocks," describes and grades various levels of performance for padlocks. Having the appropriate padlock will prevent easy access to thieves and help to thwart break-ins and robberies.

The regulations generally require:

Two mortise locks;

Two padlocks fastened in separate hasps and staples;

- Padlocks must have at least five tumblers and a casehardened shackle of at least 3/8-inch diameter.
- Padlocks must be protected with no less than ¼-inch steel hoods constructed so as to prevent sawing or lever actions on the locks, hasps, and staples.

3-point lock;

Combination of mortise lock and padlock; or

Mortise lock requiring two keys to open.

Indoor Magazines

The locking requirements for indoor magazines are generally similar to those for outdoor magazines. However, an indoor magazine located in a secured room that is locked as provided in subparagraph 27 CFR 555.208(b), 555.210(b) or 555.211(b) with the door hinges and lock hasp securely fastened to the magazine, may have each door locked with one steel padlock that meets the requirements stated above.

"Hockey Puck" Locks

"Hockey puck" type locks have no visible shackle when installed. The locking bolt and staple are both completely covered and protected by the lock body.

Prior to installing a hockey puck lock, the licensee/permittee must request and receive a variance from the locking requirements found in the Federal regulations.

For these locks to be approved for use, the lock must also have a casehardened shackle and a close-fitting shroud to prevent sawing or lever action (prying) of the lock.

Flush Mounted Locks

Locks known as "flush-mount lever locks" do not provide adequate protection against pulling or prying the lid off the magazine. This type of lock fails to provide a level of

theft-resistance for indoor storage of low explosive materials and may not be used to secure Type-4 indoor magazines. For additional information, see ATF Ruling 2004-3. Licensees or permittees who desire to use this type of lock in a secured room that is that locked as provided in subparagraph 27 CFR 555.210(b) may submit a request for a variance from regulations to the Explosives Industry Programs Branch.

Vehicular Magazines

When unattended, Type-2, -4 and -5 vehicular magazines must have wheels removed or otherwise effectively immobilized by kingpin locking devices or other methods approved by the Director.

Magazine Inspection

Magazines must be inspected at least once every 7 days. This inspection need not be an inventory, but must be sufficient to determine if there has been unauthorized or attempted entry.

A complete inventory of your explosive materials is required annually. This inventory shall be entered into your Daily Summary of Magazine Transactions.

Storage Safety

Storage Within Type-1, -2, -3 and -4 Magazines

Explosives containers must not be placed directly against an interior wall for ventilation reasons.

Explosives containers must be stored so that identifying marks are visible and easy to read.

Metal containers must not be unpacked or repacked inside the magazine or within 50 feet of magazine.

Tools for opening and closing containers must be nonsparking and may not be stored in magazines.

Smoking, matches, open flames, and spark-producing devices are not permitted in any magazine, in any room containing an indoor magazine, or within 50 feet of any outdoor magazine.

Lighting

Battery-activated safety lights/lanterns may be used in explosives magazines.

Electric lighting must meet the standards prescribed by the National Electrical Code (NEC).

All electrical switches must be located on the outside of the magazine.

Documentation that lighting complies with NEC must be available for inspection by ATF.

Housekeeping

Interior must be clean, dry, and free of grit, paper, and empty packages and containers.

Floors must be regularly swept.

Utensils used to clean magazine must have no spark-producing metal parts and may be stored in magazine.

Exterior must be clear of rubbish, brush, dry grass, or small trees (except live trees more than 10 feet tall) within 25 feet of the magazine.

All volatile materials must be kept more than 50 feet from the magazine.

Live foliage which is used to stabilize the earthen covering of a magazine need not be removed

Repair of Magazines

Prior to repairing the interior or exterior of any magazine where sparks or flame may be produced, all explosive materials:

Must be removed and placed in appropriate magazines while repairs are being made; or

Placed a safe distance away from the magazine under repair and properly guarded and protected until repairs are completed.

Quantity & Storage Restrictions

When calculating explosives weight, include the actual quantity of explosive material contained in a product, excluding inert shell casing, the box, container, or other

packaging. Most packaged explosives are marked with the net weight of explosive materials on the unit, container, or box, however, a scale may be used for accurate measurements of the actual weight to the extent possible.

Outdoor Magazines:

- No more than 300,000 pounds of explosive materials in one magazine.
- No more than 20 million detonators in one magazine.
- Additional amounts are not allowed unless approved by the Director of ATF.

Indoor Magazines:

- Cannot exceed 50 pounds of total explosives in one or more magazines inside of one structure.
- No indoor magazine may be located in residence or dwelling.

Reporting to Local Fire Authorities

Persons storing explosive materials must notify the authority having jurisdiction for fire safety in the locality where the explosive materials are stored. This notification should include the type, magazine capacity, and location of each site where the explosive materials are being stored. Notification must be made orally before the end of the day on which storage commences, and in writing within 48 hours from the time such storage commenced. The authority having jurisdiction for fire safety is typically the local fire department. The following web site is provided as an effort to assist individuals in determining who the local authority having jurisdiction for fire safety is for their area.

National Association of State Fire Marshals

Tables of Distances

The Federal explosive regulations require explosives storage magazines to be located certain minimum distances from inhabited buildings, public highways, passenger railways, and other magazines based on the quantity of explosive materials in each magazine. These tables of distance were adopted to protect the public in the event of a magazine explosion. Click here to view the Tables of Distances.

Tables of distances apply to the outdoor storage of explosive materials.

When determining the distance from a magazine to a highway, an individual should measure from the nearest edge of the magazine to the nearest edge of the highway.

If any two or more magazines are separated by less than the specified distance, then the weights in the magazines must be combined and considered as one.

Each type of explosive has a specific table of distance:

- 27 CFR § 555.218 is for storage of high explosives (including flash powder and bulk salutes), blasting agents, and display fireworks over 10,000 pounds.
- 27 CFR § 555.219 is for storage of low explosives.
- 27 CFR § 555.220 is for storage of ammonium nitrate and blasting agents from explosives or blasting agents.
- 27 CFR § 555.222 is for distances between fireworks process buildings and between fireworks process and non-process buildings.
- 27 CFR § 555.223 is for distances between fireworks process buildings and other areas.
- 27 CFR § 555.224 is for storage of display fireworks (except bulk salutes).

Barricading can significantly reduce the required minimum distances under some Tables of Distances.

Barricades

Barricading is the effective screening of a magazine containing explosive materials from another magazine, a building, a railway, or a highway, either by a natural barricade or by an artificial barricade.

When evaluating whether a magazine is properly barricaded to a highway, determine whether a straight line, from the top of any side wall of the magazine to a point 12 feet above the center of a highway, will pass through the barricade.

ATF does not consider earth covering a magazine as a barricade. A barricade must be separate from a magazine.

Natural Barricade

Natural barricades are features of the ground, such as hills or timber of sufficient density that the surrounding exposures that require protection cannot be seen from the magazine when the trees are bare of leaves.

Artificial Barricade

Artificial barricades are an artificial mound or revetted wall of earth of a minimum thickness of 3 feet, or any other approved barricade that offers equivalent protection. ATF does not consider earth covering a magazine as a barricade. A barricade must be separate from a magazine.

Bullet Resistance

Federal regulations require that Type-1 and Type-2 explosives magazines be bullet-resistant. The term "bullet-resistant" means resistant to penetration by a bullet of 150 grain M2 ball ammunition having a nominal muzzle velocity of 2,700 feet per second fired from a .30 caliber rifle from a distance of 100 feet perpendicular to the wall or door. The construction requirements for Type-2 outdoor magazines, i.e., exterior and doors constructed of not less than ¼-inch thick steel and lined with at least 2 inches of hardwood, were established to ensure bullet-resistance. ATF Ruling 76-18 specifies alternate bullet-resistant construction standards for explosives magazines.

Bullet Resistance for Type-2 Indoor Storage

Part 555.208(b) addresses Type-2 indoor magazines that, due to the additional protection against bullet penetration normally afforded by the associated building, have less stringent

construction requirements. Type-2 indoor magazines need not be bullet-resistant if the buildings in which they are stored provide protection from bullet penetration. However, if neither the magazine, nor the building in which it is located, is itself bullet resistant, then the combination of the magazine and the building must meet bullet-resistance requirements.

If there is a concern that the combined construction of a particular Type-2 indoor magazine and its associated building does not meet bullet-resistance requirements, and ATF Ruling 76-18 does not address the situation, a licensee or permittee may submit a request for a variance to the bullet-resistance requirements contained in 555.208. Variance requests should be submitted to the Explosives Industry Programs Branch through the local ATF office. If you choose to submit a request for a variance, please include specific construction information for both the magazine and the building in which it is located, in your request.

Recordkeeping Requirements

Daily Summary of Magazine Transactions (DSMTs) is a running balance of explosive materials in each magazine, and has the following requirements.

A complete inventory of your explosive materials is required annually. This inventory shall be entered into the DSMT for inspection purposes.

DSMTs must be maintained at each magazine or at a central location on the premises (a separate DSMT is required for each magazine).

The DSMT record should include:

- The manufacturer's name or brand name;
- The date of receipt or removal;
- The total quantity received in and removed from each magazine during the day; and
- The total remaining on hand at the end of the day

Entries of transactions **SHALL** be recorded no later than the close of the next business day.

Records must be retained for no less than 5 years from the transaction date.

When going out of business, records must be sent to the ATF Out of Business Records Center.

No entry is required for any day on which no explosive materials are placed into or removed from a magazine.

Storage Variances

Licensees or permittees who wish to use an alternate method or procedure, including alternate magazine construction standards, must submit a request for variance from the regulations. For additional information regarding variance requirements, see ATF's Variance Request Guidelines.

Supplemental Materials

ATF Form P 5400.17 – Explosives Magazine Construction Requirements

Storage Rulings

ATF Ruling 75-20 — ATF Ruling 75-20 - Meaning of Term "Inhabited Building."

ATF Ruling 75-21 — ATF Ruling 75-21 - Construction of Storage Facilities by the Department of Defense - Concrete Floors."

ATF Ruling 76-18 — ATF Ruling 76-18 - Alternate Bullet Resistant Construction Standards for Explosives Magazines.

ATF Ruling 77-24 — Storage of Electric Blasting Caps with Other Explosive Materials.

ATF Ruling 2002-3 — Indoor storage of explosives in a residence or dwelling.

ATF Ruling 2002-4 — Indoor storage of explosives in business premises directly adjacent to a residence or dwelling.

ATF Ruling 2004-3 — Under certain conditions, flush-mounted bolt-type locks used for Type-4 indoor magazines.

ATF Ruling 2005-2 — Meaning of Term "Highway."

>ATF Ruling 2005-3 — Meaning of Term "Inhabited Building."

ATF Ruling 2007-2 — Temporary Storage of Display Fireworks.

ATF Ruling 2007-3 — Preloading and Temporary Storage of Blasting Agents on Bulk Delivery Vehicles.

ATF Ruling 2010-7 — Perforating Gun Storage

ATF Ruling 2011-2 — Locking Requirements for Type-5 Bins and Silos

ATF Ruling 2011-3 — ATF Ruling 2011-3 Alternate Locks Authorized for Explosives Magazines

Special Notices and Open Letters to the Industry

Open Letter — Open Letter to All Federal Explosives Licensees and Permittees — 2/25/10

Memorandum — Locking Requirements for Portable Type-5 Magazines — 2/25/10

Theft Advisory Notice to All Explosives Industry Members - 02/26/09

Open Letter 082908 - Preparing for Natural Disasters - 8/29/08

Newsletters

Mortise Locks and Cylindrical Dead Bolt Locks / Indoor Magazines Stored Inside Containers and Trailers

Questions

If you have any questions relating to explosive storage requirements, please contact the ATF Explosives Industry Programs Branch.

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